

Geometry, Topology and Dynamics Seminar

Weakly aperiodic SFT on lamplighters

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Abstract: A subshift of finite type (SFT) is a symbolic dynamical system defined by a finite collection of “local rules”. For instance, for any natural number k and any group G equipped with a finite generating set S , the set of all valid k -colorings of the corresponding Cayley graph of G (colorings of the Cayley graph in which no two adjacent vertices have the same color) forms an SFT. It is clear that any SFT X over a group G carries a G -action, and X is said to be weakly aperiodic if it is nonempty and has no finite G -orbits. When $G=\mathbb{Z}$, there are no weakly aperiodic SFTs over G , but when $G=\mathbb{Z}^2$ such SFTs do exist, as was shown by Berger. Carroll and Penland conjectured that a group with no weakly aperiodic SFT must be virtually cyclic. We will discuss some known obstructions to a group G being a counterexample to this conjecture (meaning that G is not virtually cyclic, but still admits a weakly aperiodic SFT), and explain why lamplighter groups were the most natural candidate. Time permitting, we will briefly discuss our proof that a lamplighter group cannot actually be a counterexample.

Monday, November 20 at 3:00 PM in SEO 612
